

FIG. 1

004250" 90544560

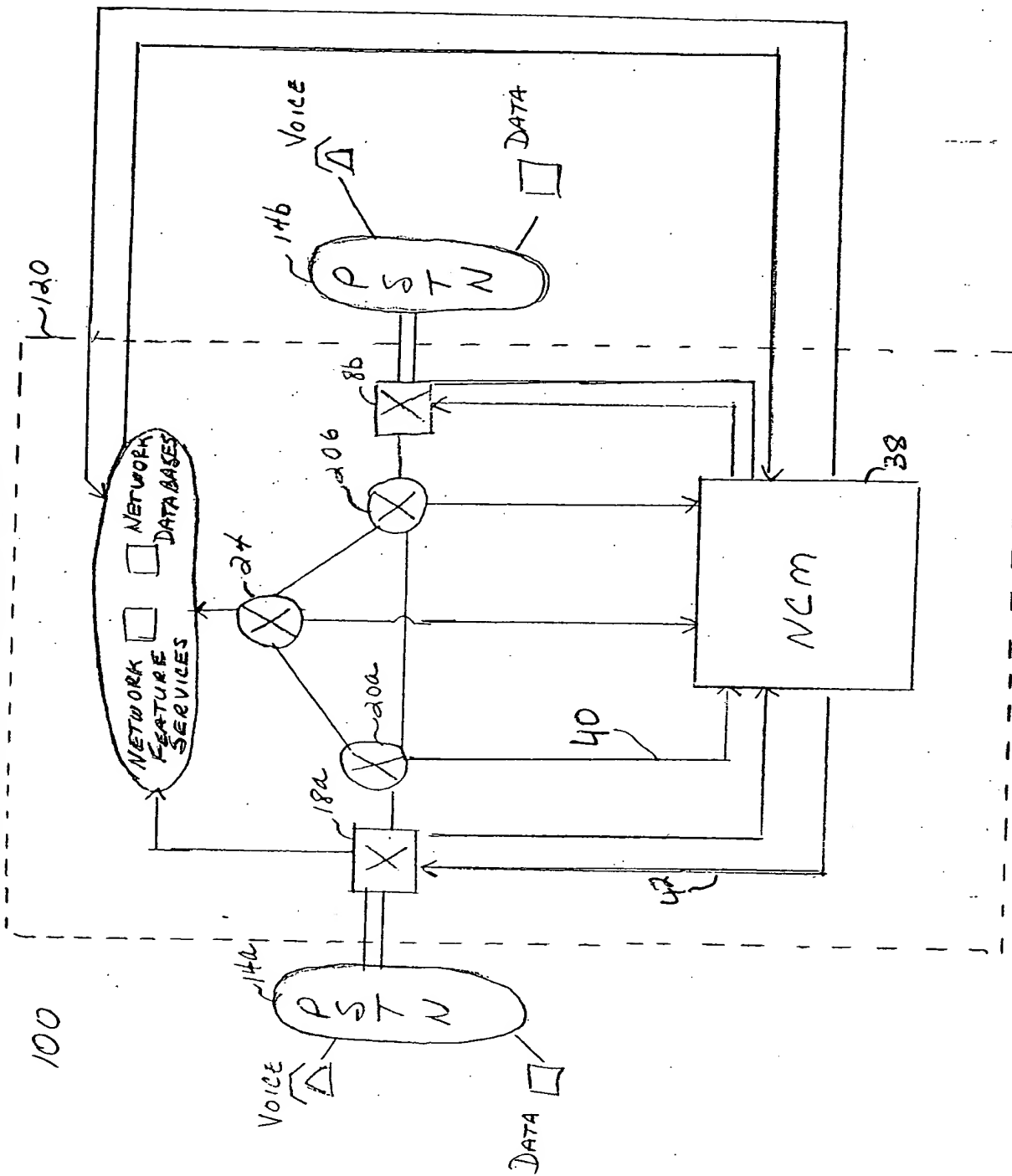


FIG. 2

# Reconfiguration of Bandwidth Pipes (ATM)

$N_i$  = Size of VTG<sub>i</sub> in terms of DS<sub>0</sub> channels

$\lambda_i$  = Call arrival rate at VTG<sub>i</sub>

$b_i$  = Fraction of blocked calls experienced at VTG<sub>i</sub>

$(1/\mu)$  = Average holding time per call

$T$  = Allowed blocking threshold

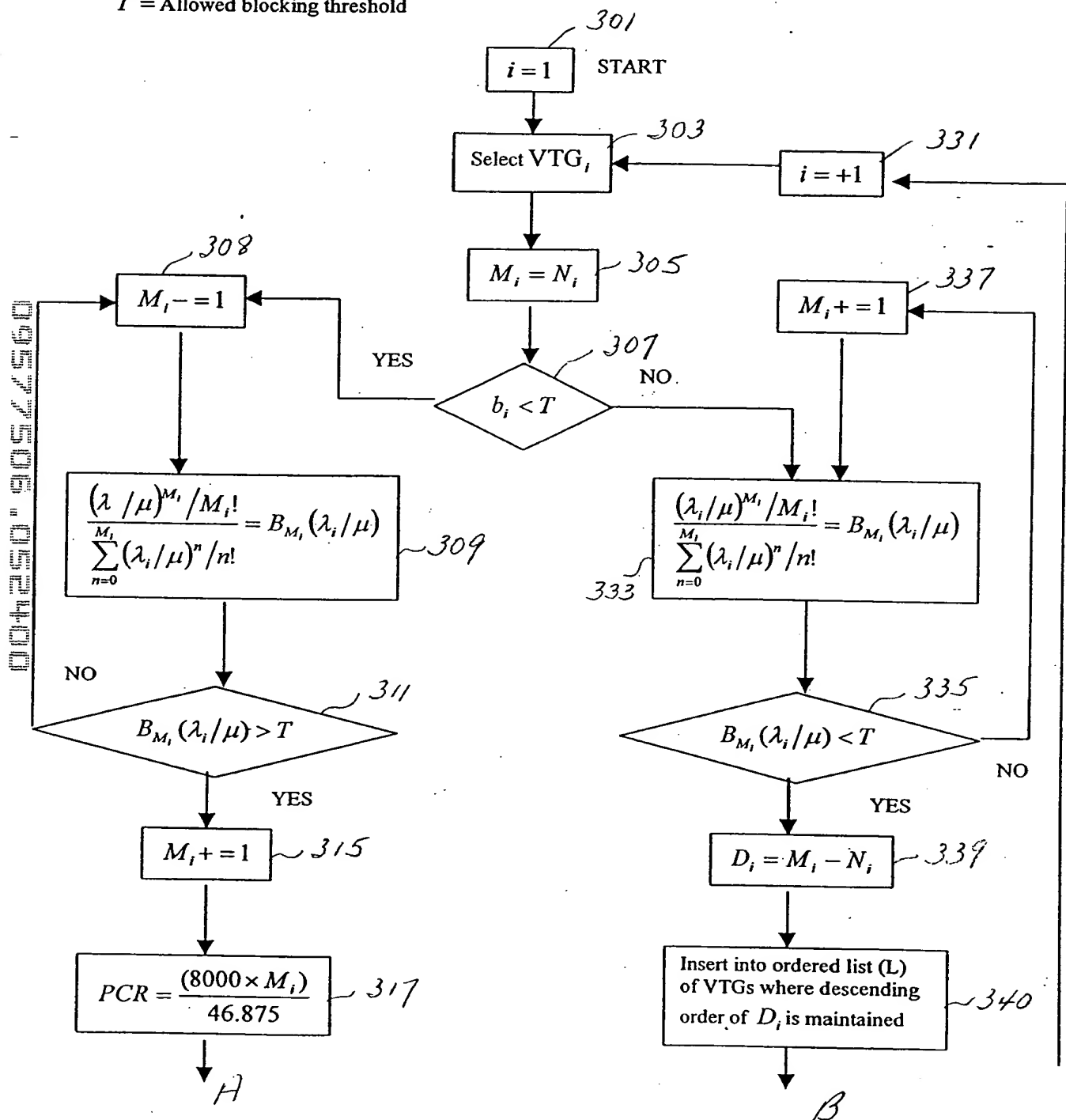


FIG. 3A

004250" 90572560

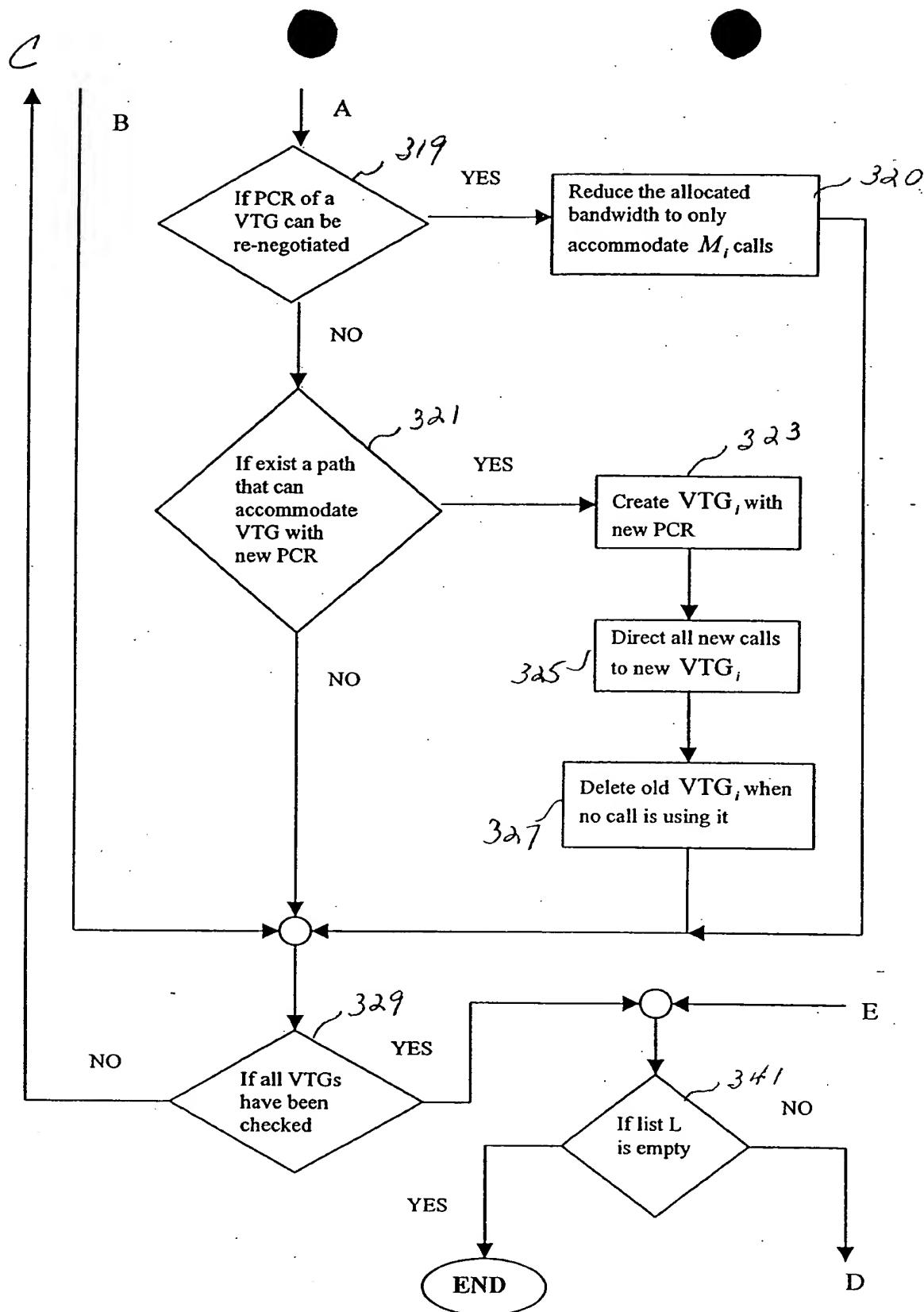


FIG. 3B

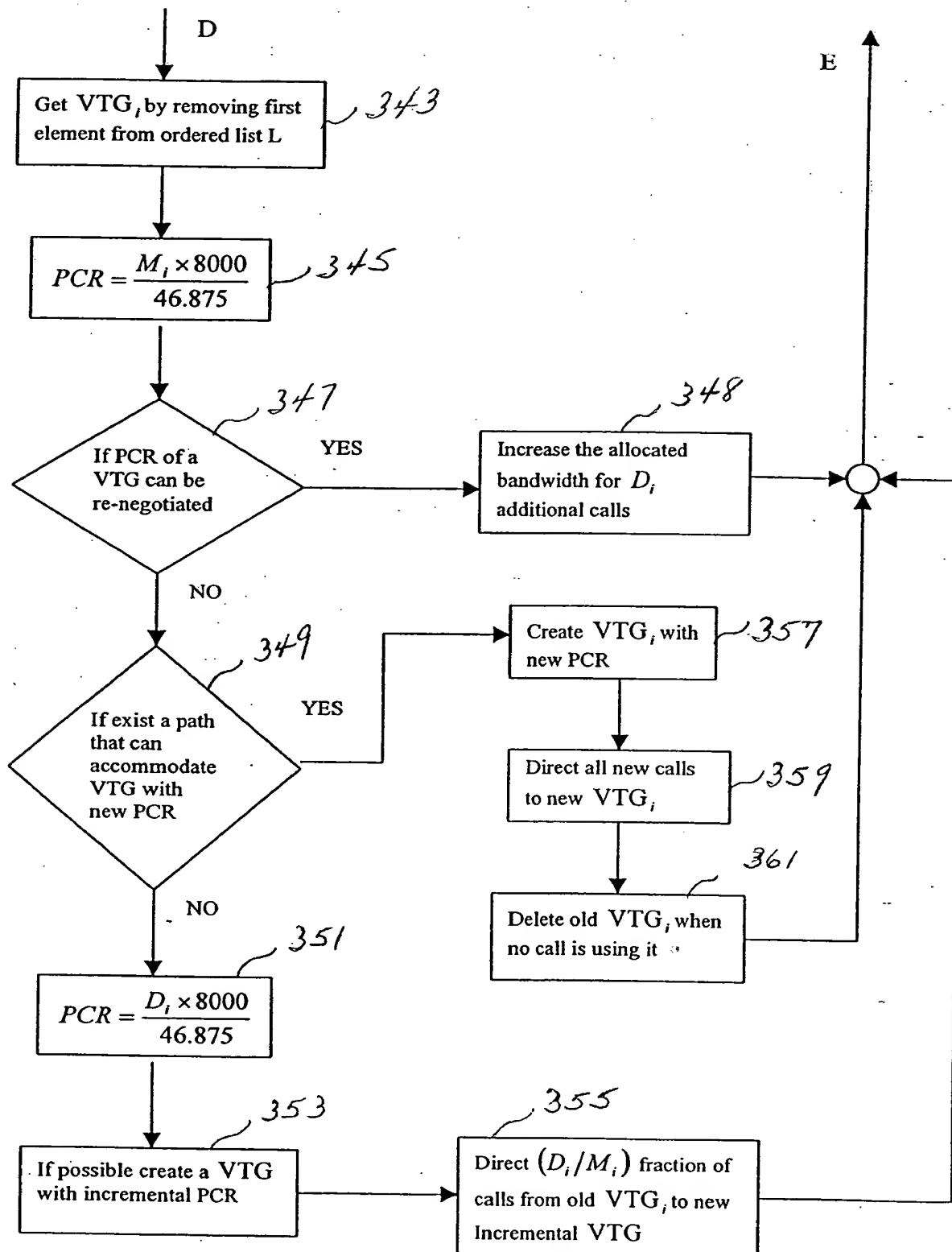


FIG. 3C

# Re-routing/Call Gapping of calls in PSTN Domain (ATM)

$N_i$  = Size of VTG<sub>i</sub> in terms of DS<sub>0</sub> channels

$\lambda_i$  = Call arrival rate at VTG<sub>i</sub>

$b_i$  = Fraction of blocked calls experienced at VTG<sub>i</sub>

$(1/\mu)$  = Average holding time per call

$B_i$  = Fraction of blocked calls experienced at VTG<sub>i</sub>

$T$  = Allowed blocking threshold

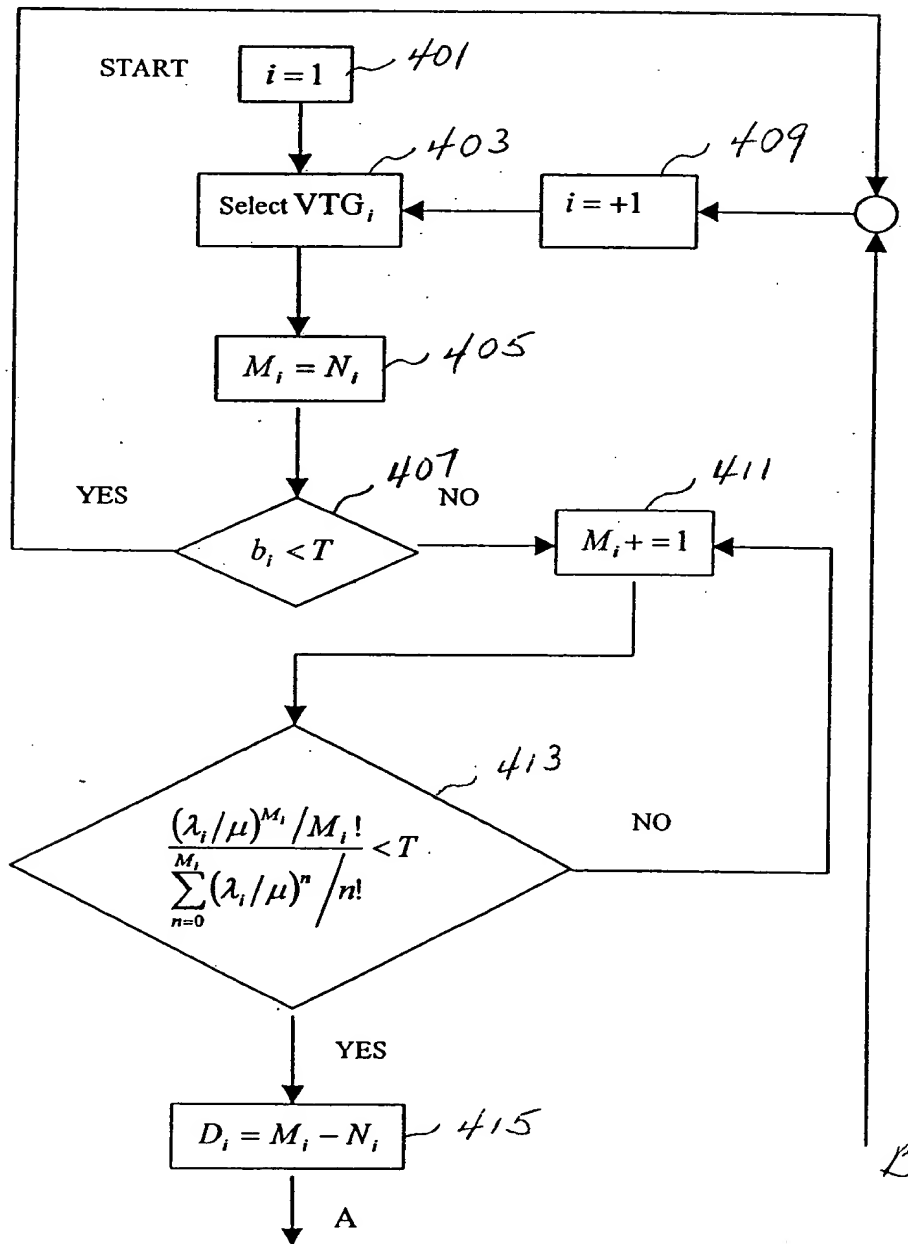


FIG. 4A

004250" 90572560

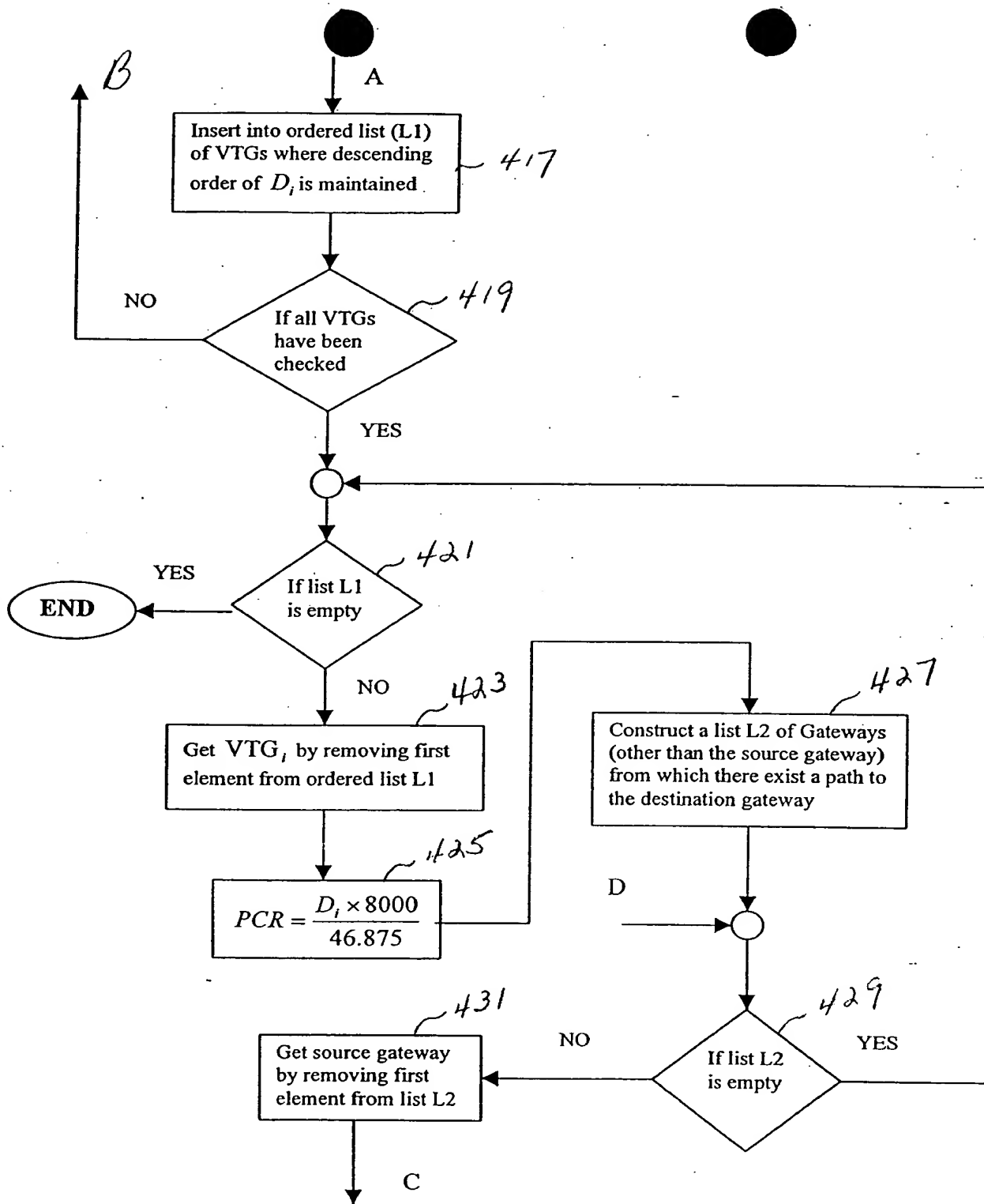


FIG. 4B

004250 9057560

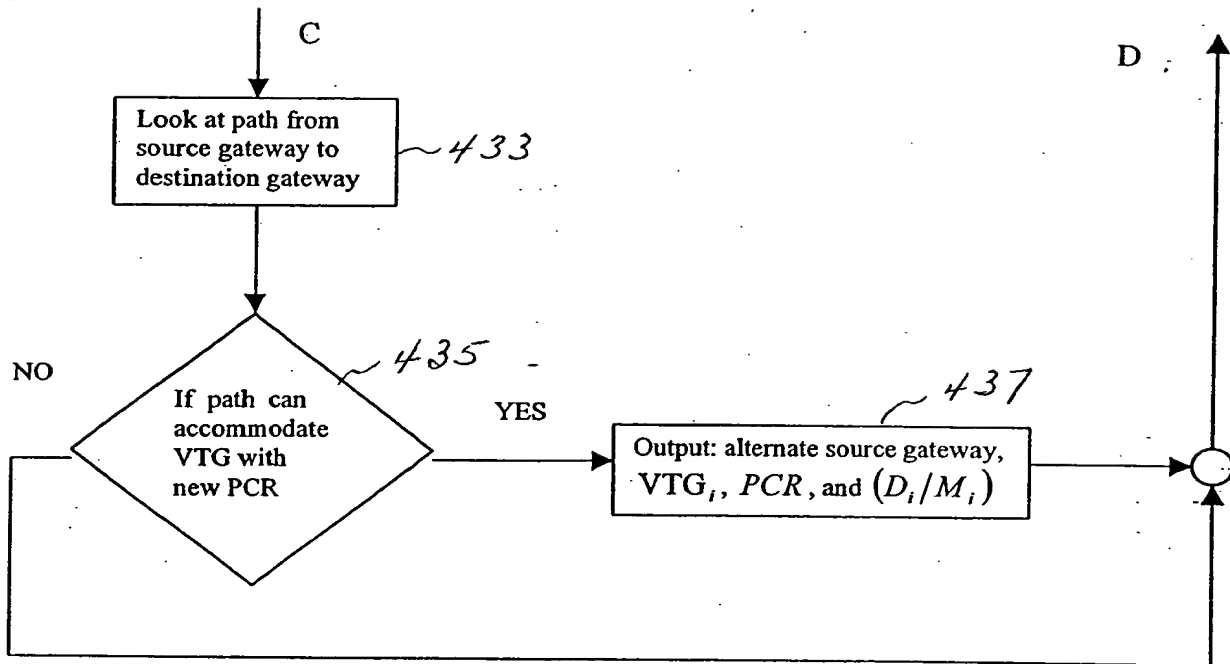


FIG. 4C



# Voice Compression (ATM)

$N_i$  = Size of VTG<sub>i</sub> in terms of DS<sub>0</sub> channels

$\lambda_i$  = Call arrival rate at VTG<sub>i</sub>

$b_i$  = Fraction of blocked calls experienced at VTG<sub>i</sub>

$CCR_i$  = current compression rate allocated to VTG<sub>i</sub>

$(1/\mu)$  = Average holding time per call

$T$  = Allowed blocking threshold

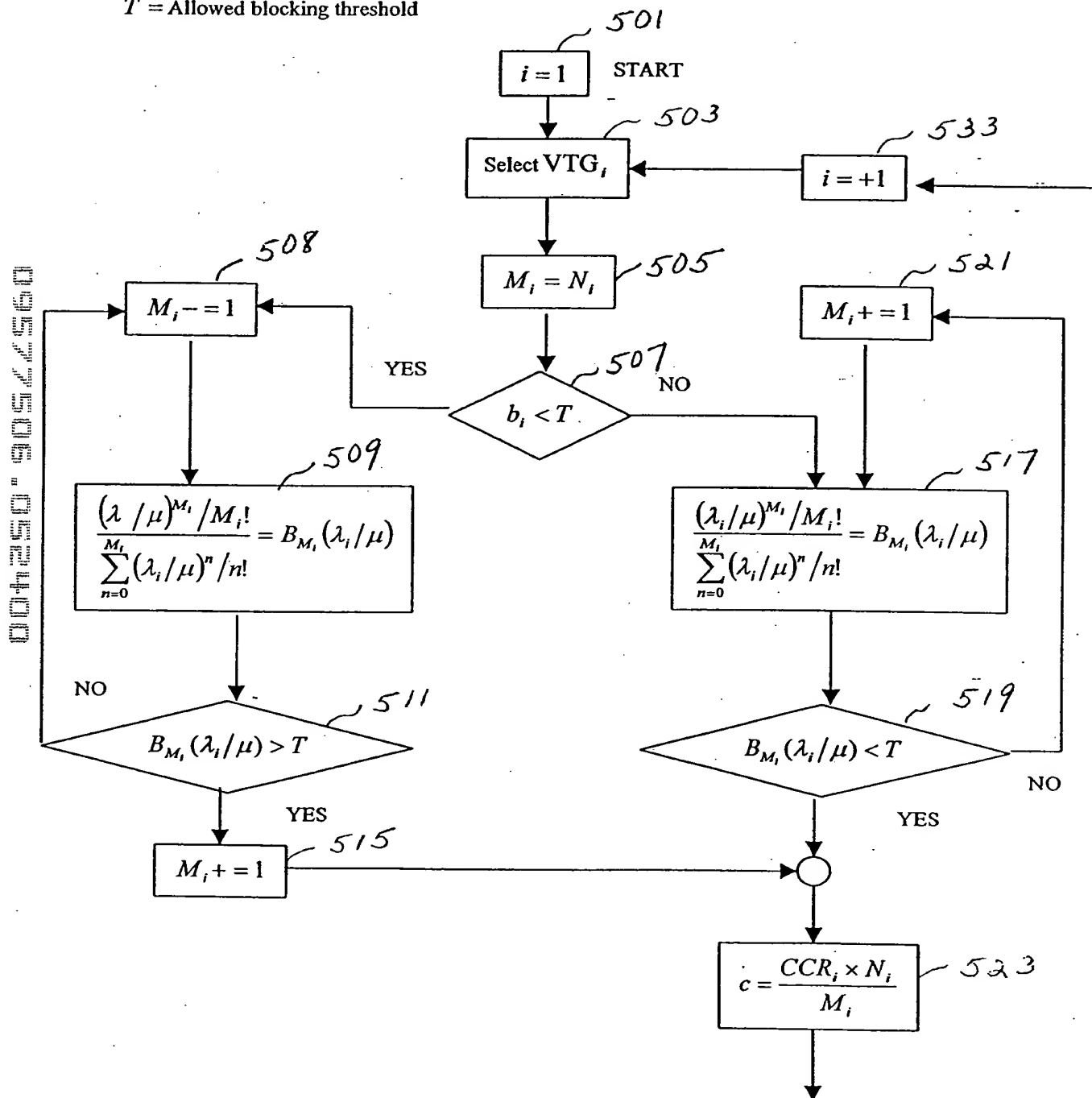


FIG. 5A

09577506 052400

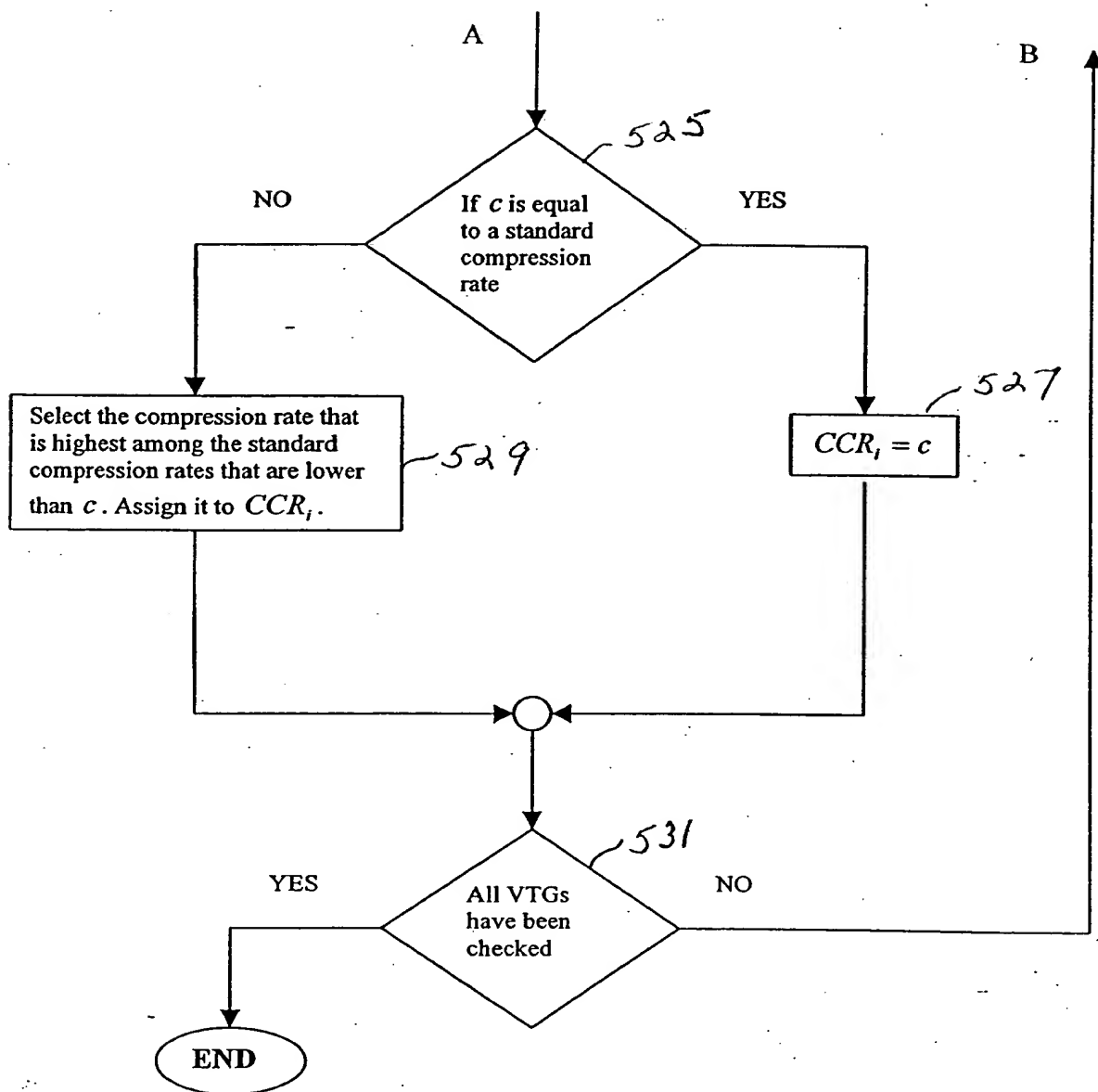


FIG. 5B

# **Call Blocking (unavailability of RTP measurements)**

$PU_i$  = utilization of  $i^{th}$  port

$PC_i$  = capacity of  $i^{th}$  port

$U_i$  = utilization threshold

$\lambda_k$  = call arrival rate for  $k^{th}$  PVG pair

$N_k$  = number of calls for which bandwidth is allocated to  $k^{th}$  PVG pair

$p_{B_i}$  = bandwidth reduction correction factor due to the  $i^{th}$  port

$p_{G_i}$  = bandwidth incremental correction factor due to the  $i^{th}$  port

$f_k$  = bandwidth reduction correction factor assigned to the  $k^{th}$  PVG pair

$e_k$  = bandwidth incremental correction factor assigned to the  $k^{th}$  PVG pair

$B_k$  = assigned blocking probability to the  $k^{th}$  PVG pair

$(1/\mu)$  = average call holding time

$T$  = blocking threshold

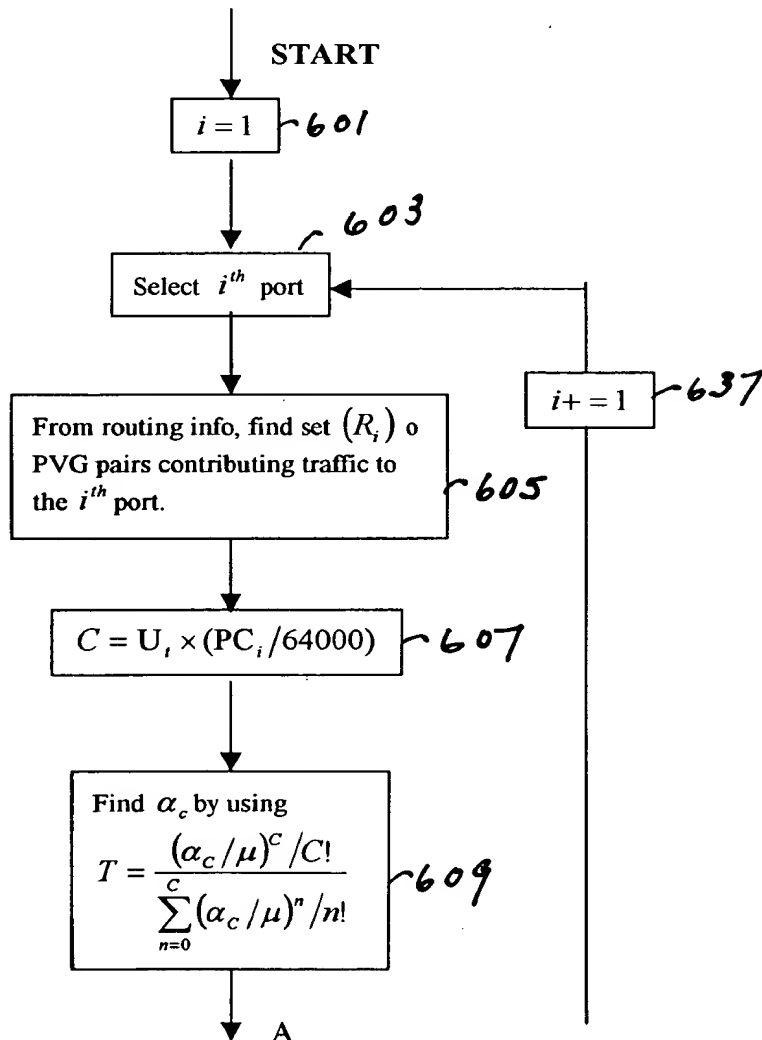


FIG 6 A

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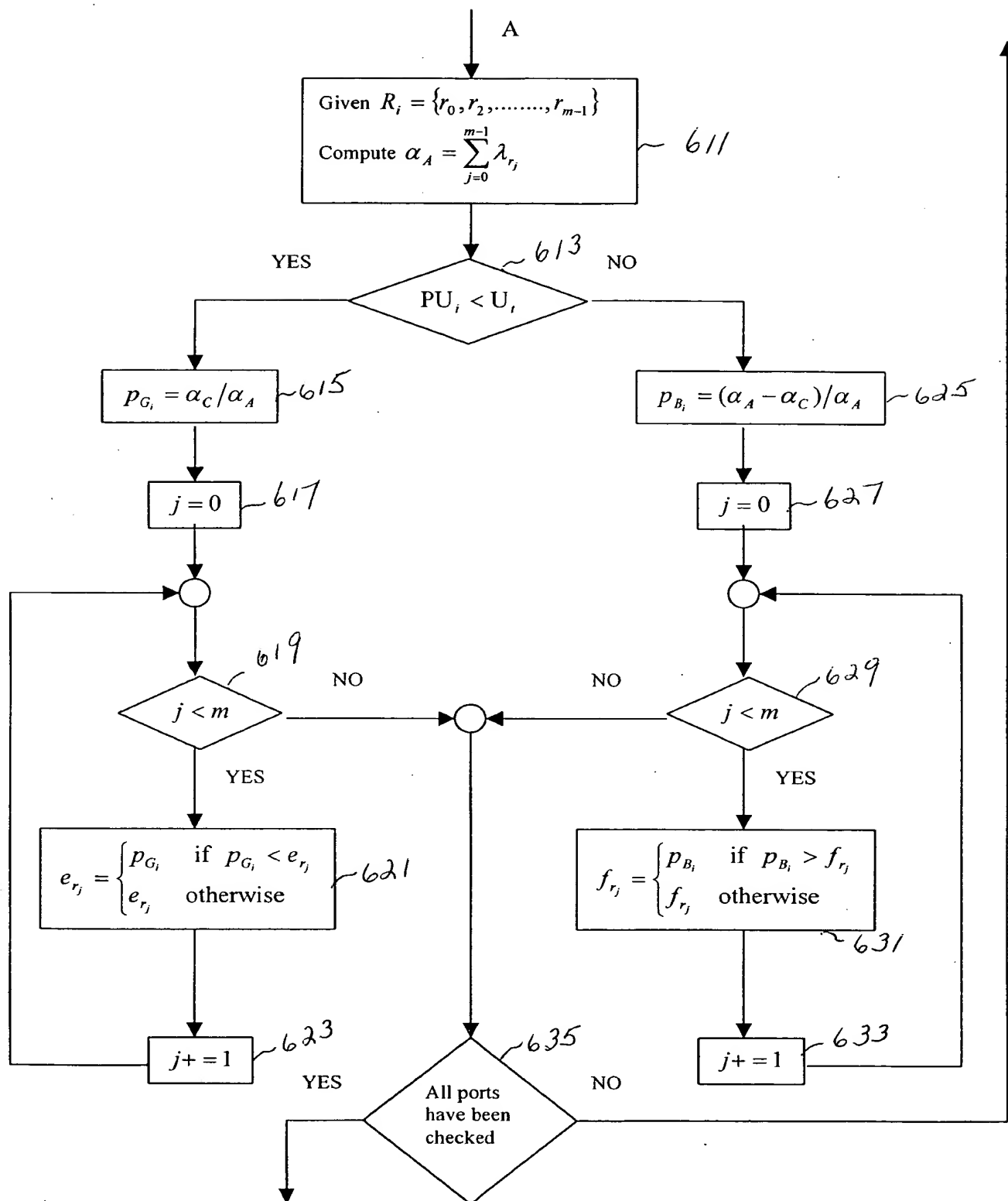


FIG. 6B

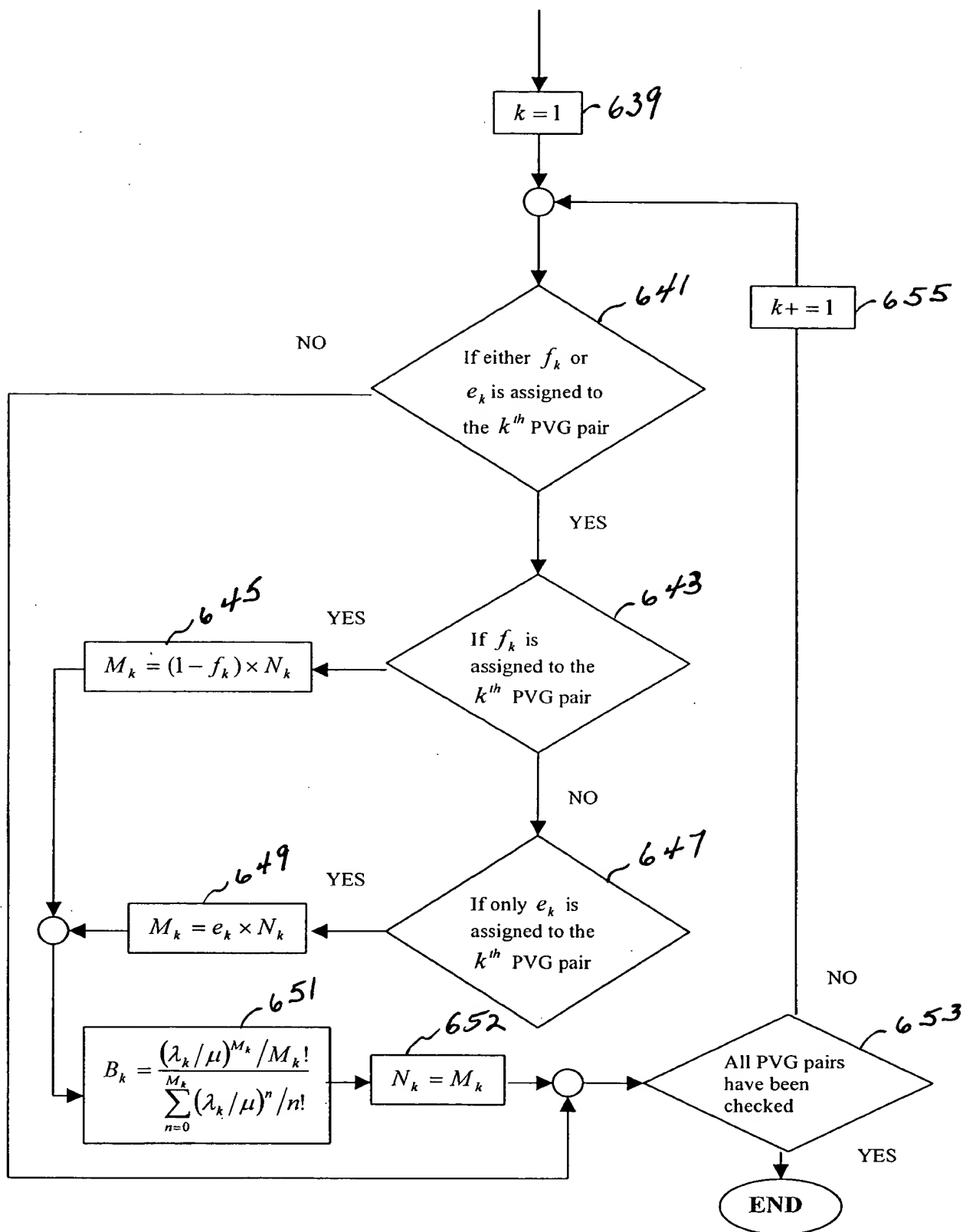


FIG. 6C

# Call Blocking (Availability of RTP measurements)

$L_c$  = fraction of packet loss per call

$L_t$  = packet loss threshold

$D_c$  = delay jitter per call

$D_t$  = delay jitter threshold

$N_i$  = number of active calls in  $i^{th}$  PVG pair

$PVGPAIR_i = i^{th}$  PVG pair

$S$  = set of PVG pairs between which poor performing calls exist

$P$  = set of all PVG pairs

$F_i$  = indicator flag for  $PVGPAIR_i$

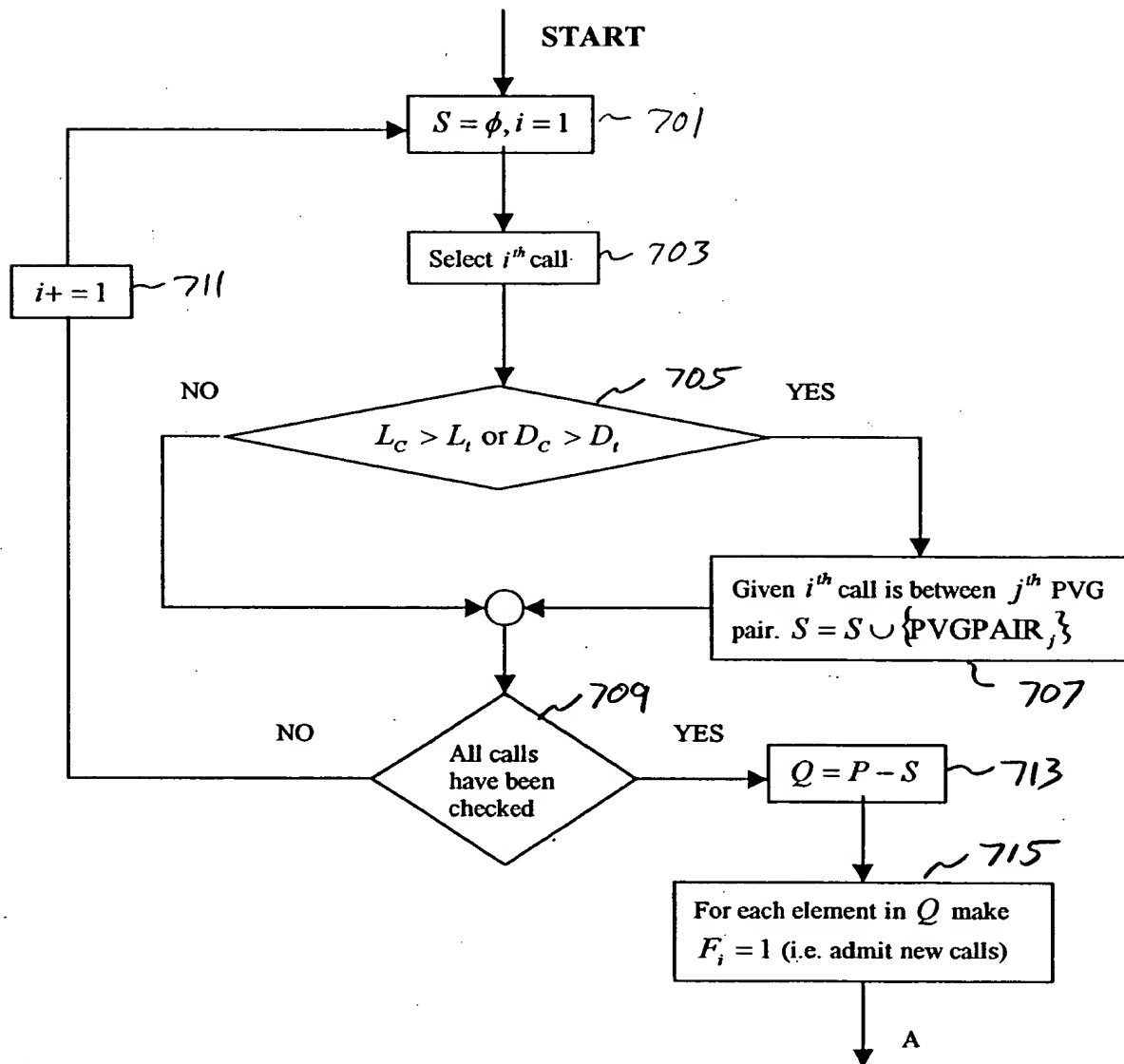


Fig. 7A

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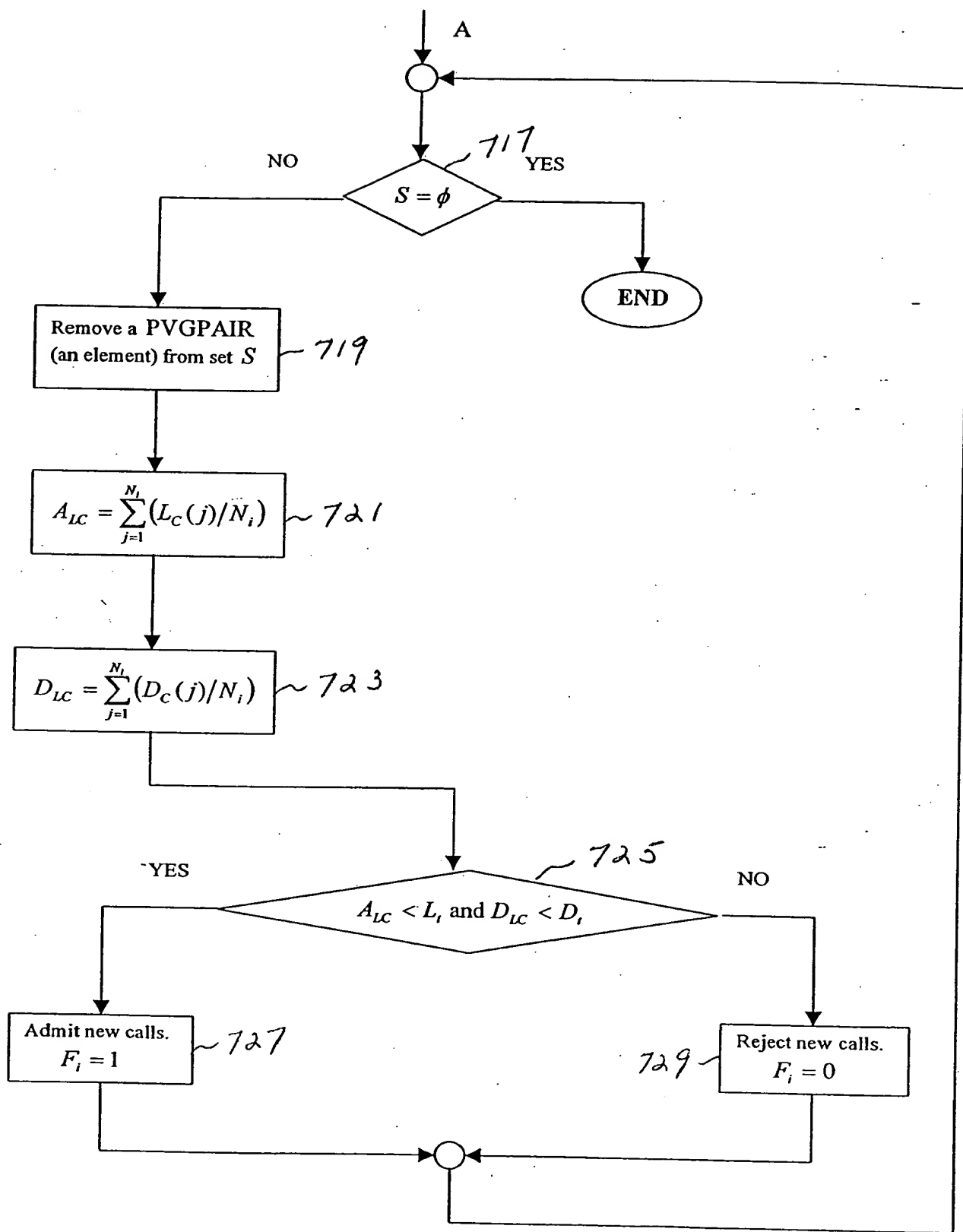


FIG. 7B

# Re-routing/Call Gapping (Availability/unavailability of RTP measurements)

$PU_i$  = utilization of  $i^{th}$  port

$PC_i$  = capacity of  $i^{th}$  port

$U_t$  = utilization threshold

$\lambda_k$  = call arrival rate for  $k^{th}$  PVG pair

$N_k$  = number of calls for which bandwidth is allocated to  $k^{th}$  PVG pair

$(1/\mu)$  = average call holding time

$p_{B_i}$  = bandwidth correction factor due to  $i^{th}$  port

$f_k$  = bandwidth correction factor assigned to the  $k^{th}$  PVG pair

$T$  = blocking threshold

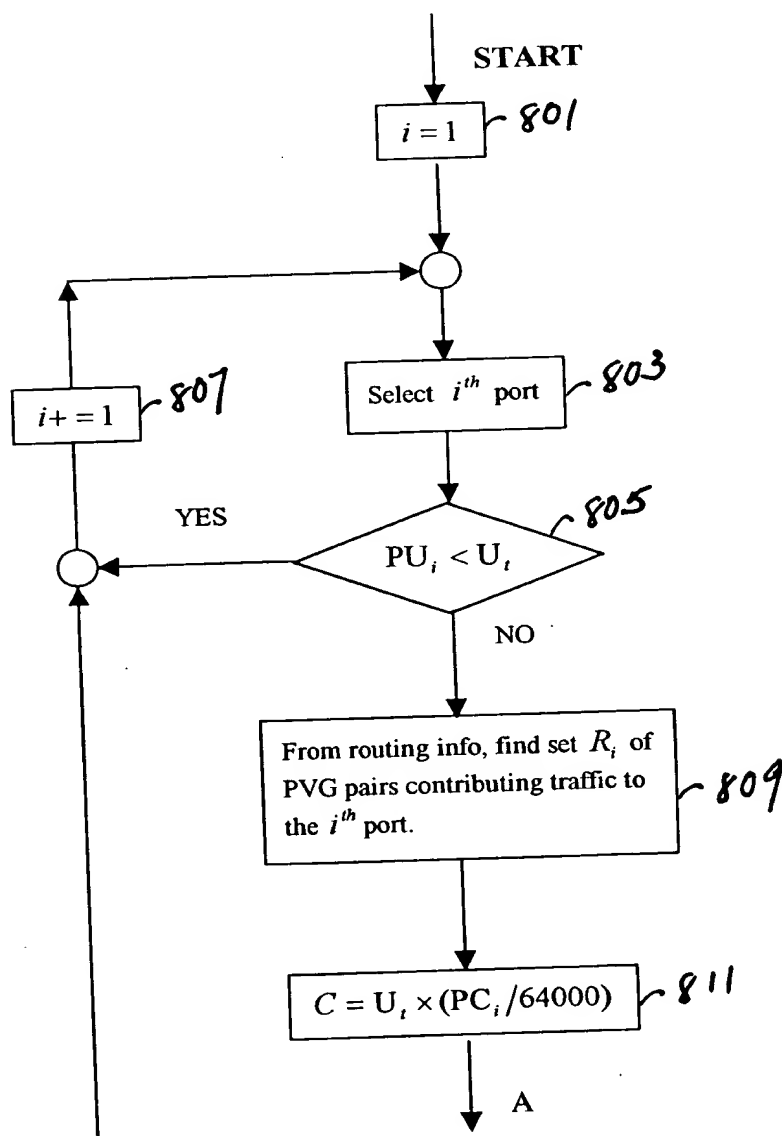


FIG. 8A

09577506-052400



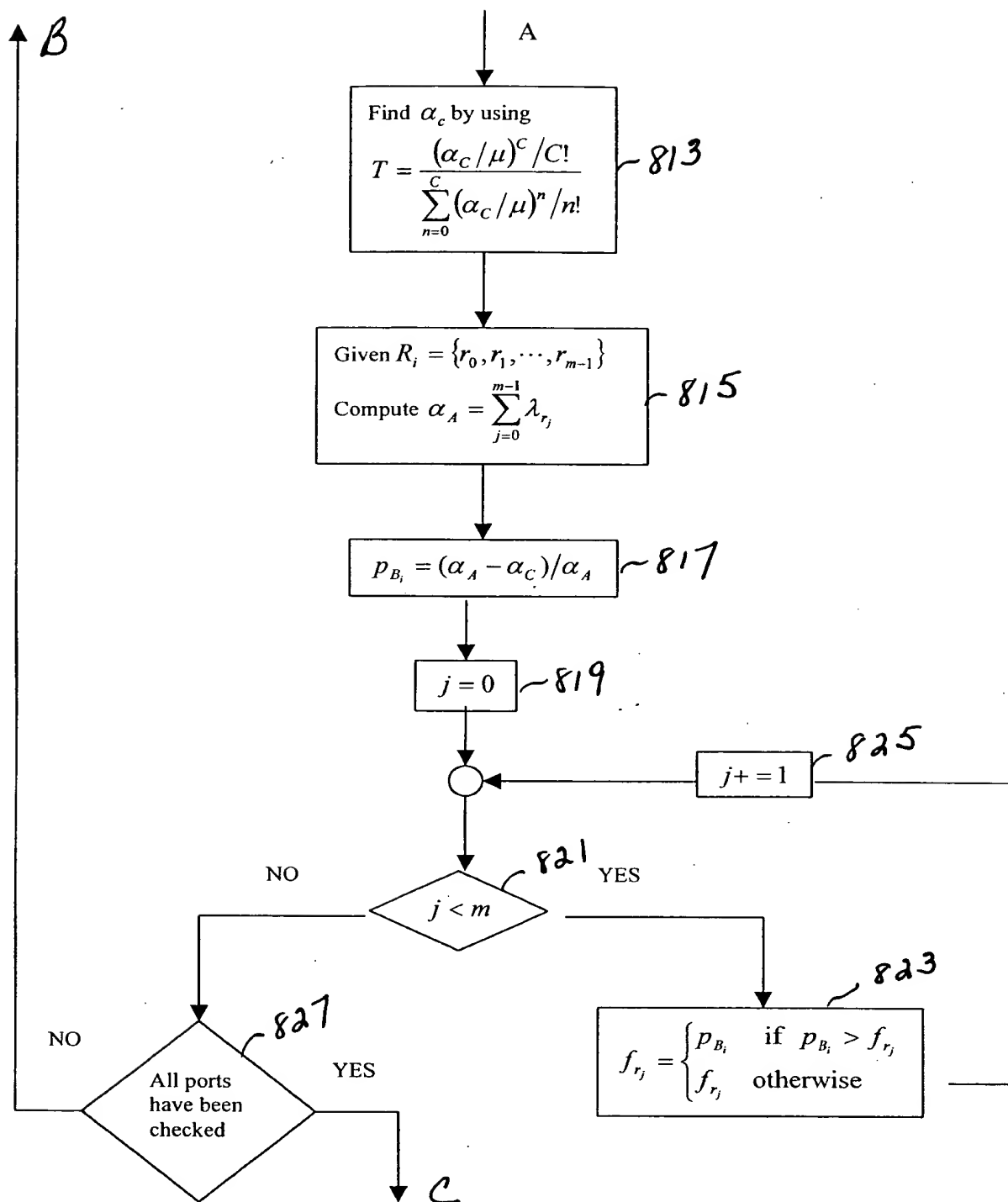


FIG. 8B

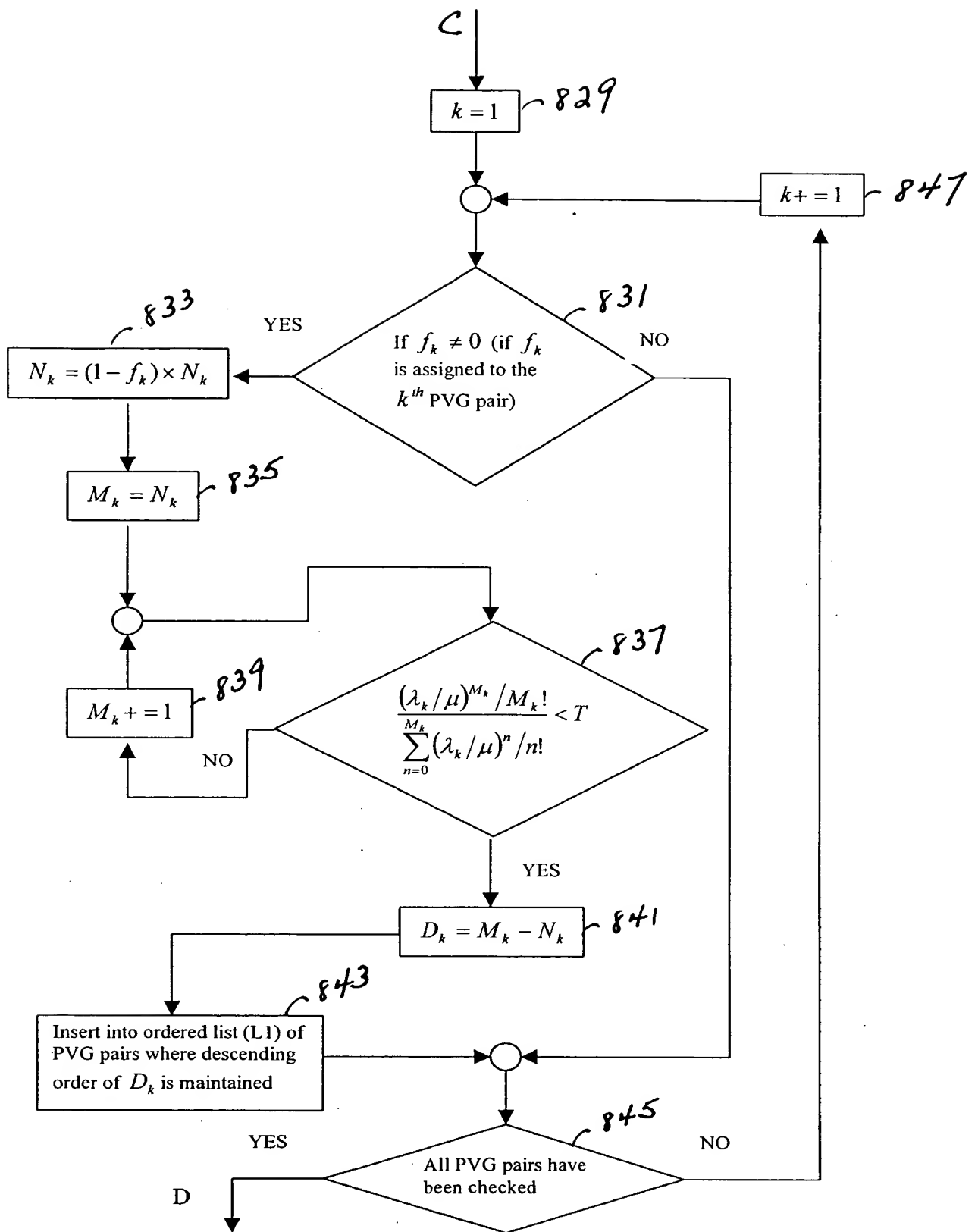


FIG. 8C

004250" 90522560

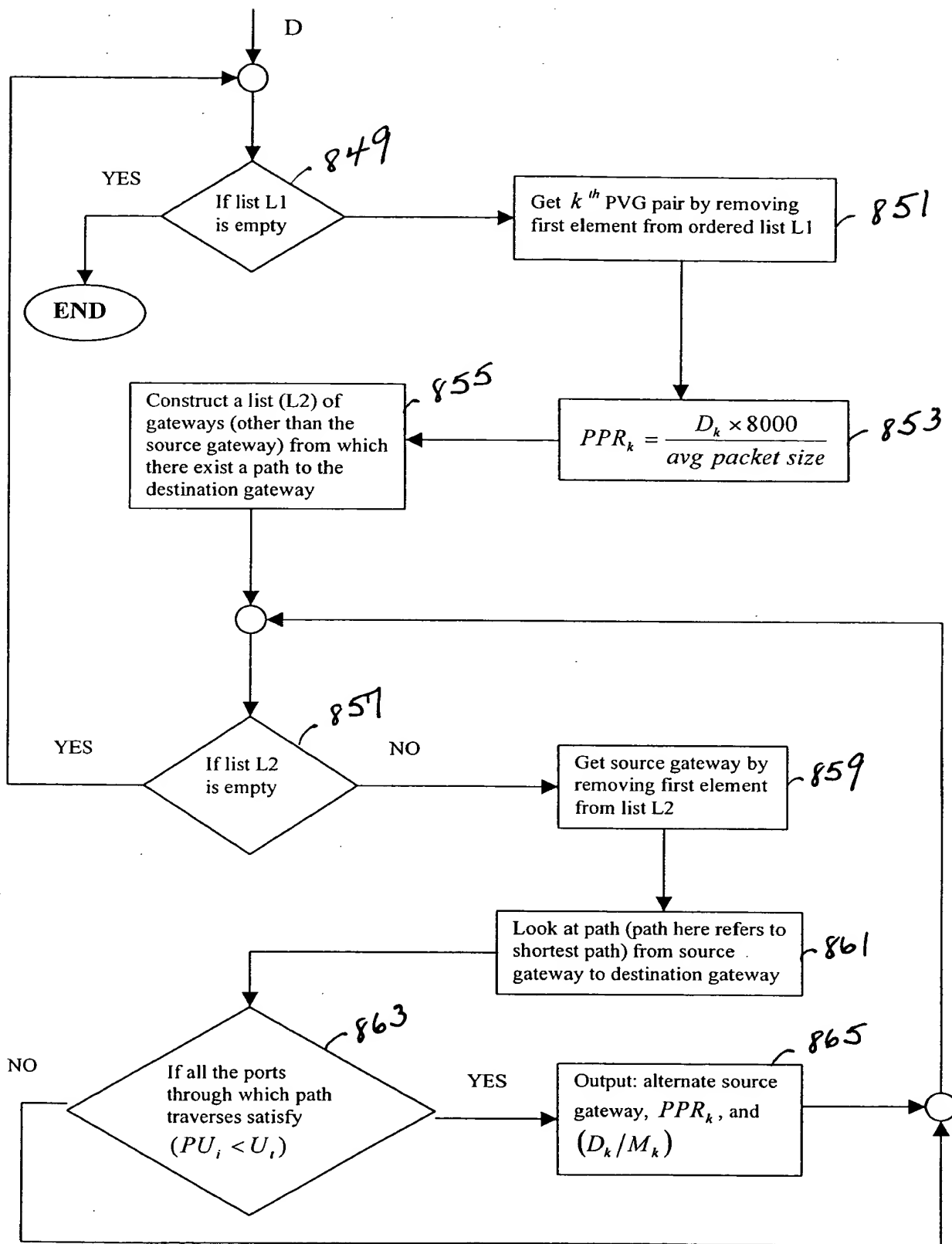


FIG. 8D

# **Compression (Availability/unavailability of RTP measurements)**

$U_i$  = utilization of  $i^{th}$  port

$PC_i$  = capacity of  $i^{th}$  port

$U_t$  = utilization threshold

$\lambda_k$  = call arrival rate for  $k^{th}$  PVG pair

$N_k$  = number of calls for which bandwidth is allocated to  $k^{th}$  PVG pair

$CCR_k$  = current compression rate allocated to  $k^{th}$  PVG pair

$p_{B_i}$  = bandwidth reduction factor due to the  $i^{th}$  port

$p_{G_i}$  = bandwidth incremental factor due to the  $i^{th}$  port

$f_k$  = bandwidth reduction correction factor assigned to the  $k^{th}$  PVG pair

$e_k$  = bandwidth incremental correction factor assigned to the  $k^{th}$  PVG pair

$(1/\mu)$  = average call holding time

$T$  = blocking threshold

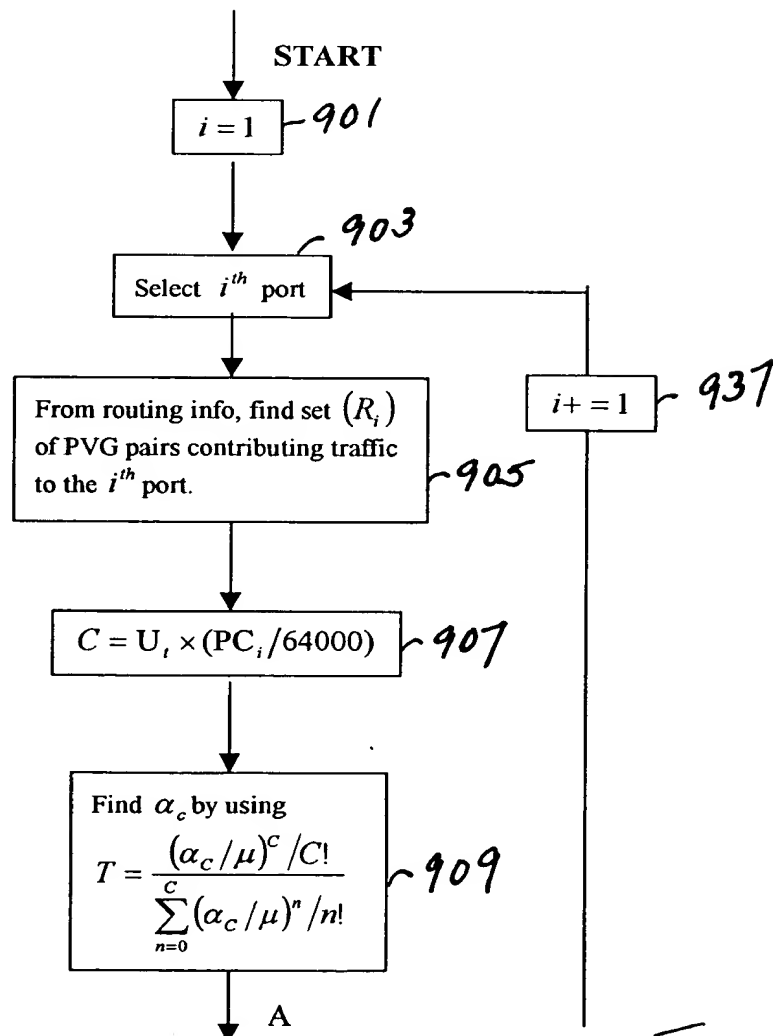


FIG. 9A

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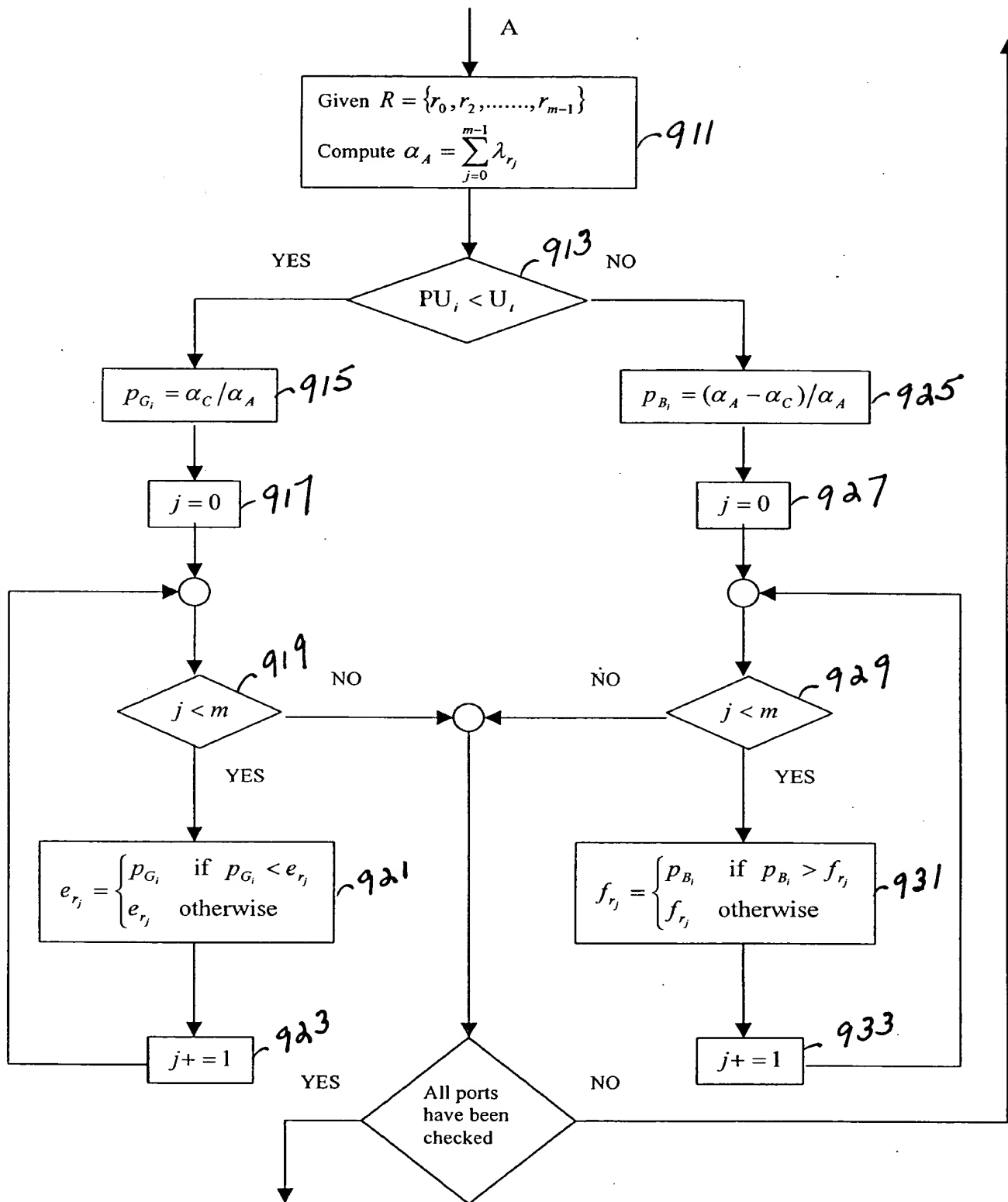


FIG. 9B

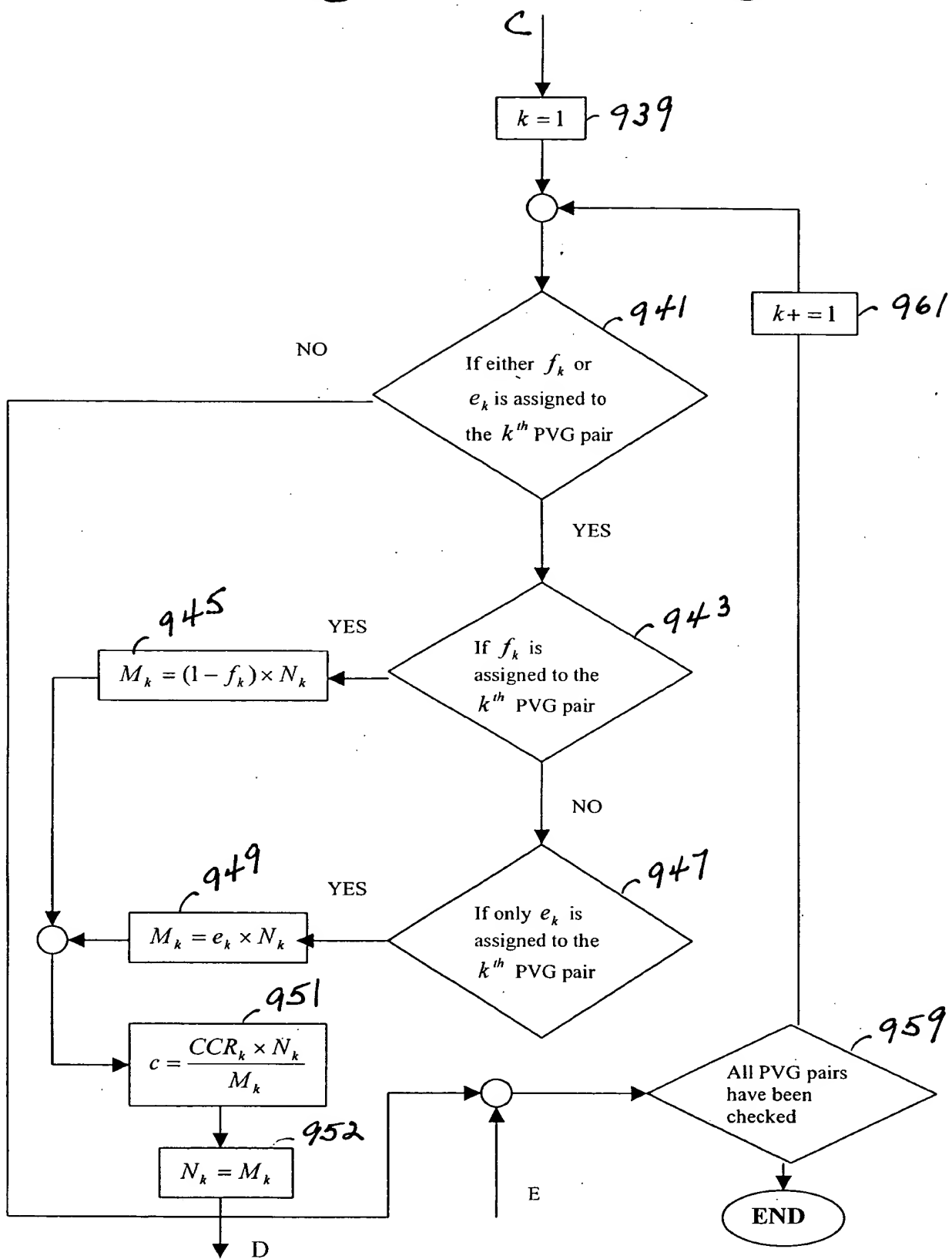


FIG. 9C

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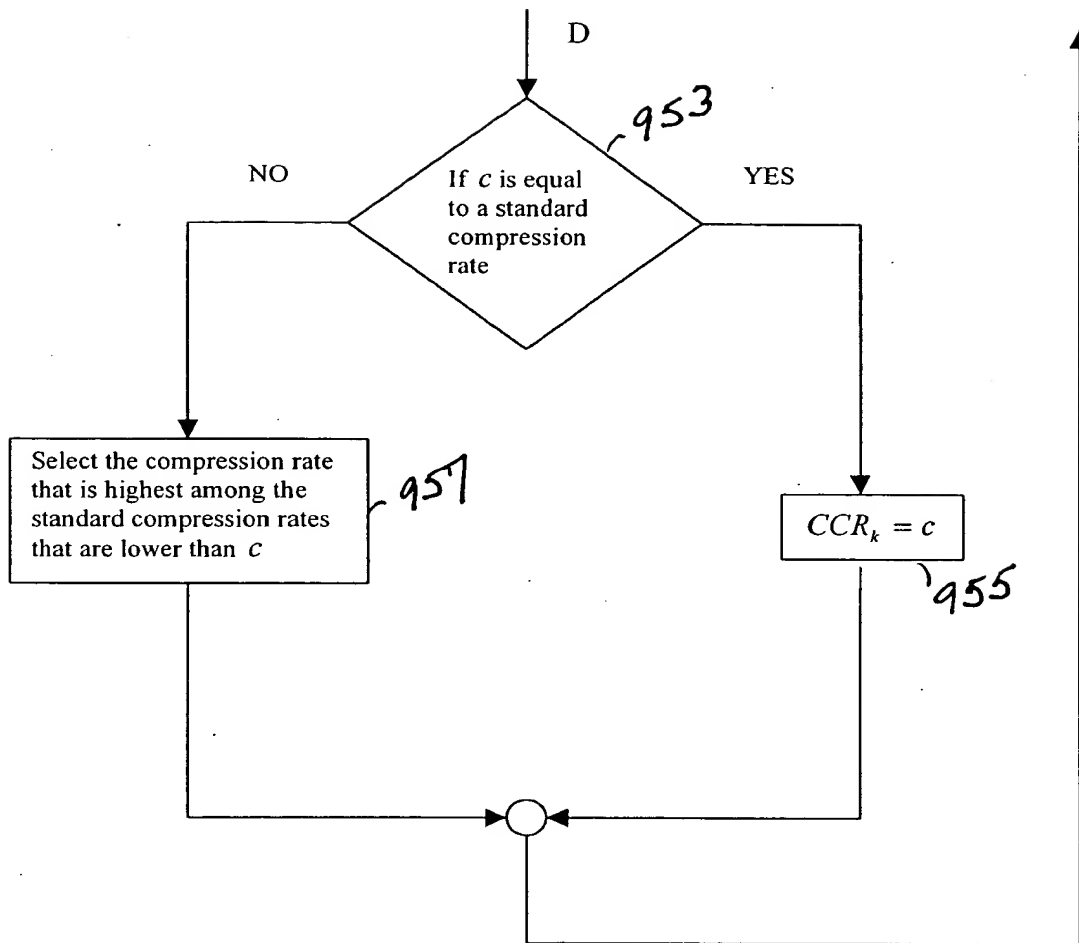


FIG. 9D